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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,691	06/30/2003	Jonathan Scott Darling	990892-29	7684

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EXAMINER
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BOWERS, NATHAN ANDREW

ART UNIT	PAPER NUMBER
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1744

DATE MAILED: 06/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/607,691

Applicant(s)

DARLING ET AL.

Examiner

Nathan A. Bowers

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☒ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 063003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 1) Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "natural" in claims 1-23 is a relative term which renders the claim indefinite. The term "natural" is not defined by the claim, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The qualities that distinguish a natural process from an artificial process are not clearly understood or described in the claims. It is uncertain how the claimed invention constitutes a "natural" process when it is being conducted in a chemical reactor.

The term "optimal" in claims 5 and 15 is a relative term which renders the claim indefinite. The term "optimal" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is believed that those of ordinary skill in the art would have different concepts regarding the degree of enzyme activity that is required for determining when conditions are "optimal."

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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2) Claims 1-7, 12, 14-16, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US 5162129) in view of Sermanni (US 6958110), Davenport (US 6045070), and Peters (US 5352469).

With respect to claims 1 and 2, Anderson discloses an apparatus for natural recycling of protein waste comprising a means (Figure 1:20) for mixing an enzymatic digest medium. In column 6, line 65 to column 7, line 33 and column 8, line 48 to column 9, line 34, Anderson discloses the use of digesters (Figure 1:46, 48, 52) with rotatable paddles (Figure 1:54) to mix a protein waste with an enzymatic solution. Anderson discloses a grinding assembly (Figure 1:10) in column 6, lines 35-64. Column 11, lines 50-59 state that that the grinder accepts protein wastes (Figure 1:12) as well as the enzymatic digest medium that is recycled to the grinder from the output of the digester/mixing reactors. Column 12, line 58 to column 13, line 44 state that the protein solubles mixture is mixed with a stream of oil, and moved to a series of evaporators where the protein/oil solution is emulsified and digested using rotatable blades (Figure 1:81). The evaporators serve as a drying system, and the rotatable blades act as mixing devices. Anderson, however, does not expressly disclose the use of a means for adjusting the pH level in the enzymatic digester. Anderson does not disclose that the grinding assembly is mounted on a movable platform, or that the drying system includes an extruder.

Sermanni discloses an apparatus for enzymatically digesting agricultural materials that comprises a reaction chamber (Figure 1:5). Column 3, line 65 to column 4, line 30 and column 5, lines 29-62 teach that the pH of the reaction solution is

maintained using appropriate pH corrective solutions. Column 6, lines 48-53 specifically disclose the use of pH probes/sensors.

Davenport discloses an apparatus for processing animal remains (column 2, lines 31-36 and column 20, lines 9-12) that comprises a receiving tank (Figure 1:16) and a grinder (Figure 1:12). Column 11, lines 17-30, column 13, lines 5-6, and column 21, lines 32-35 state that the grinder can be built as a mobile system so that granulation can be done at any site.

Peters discloses an apparatus for recycling food product wastes. An extruder (Figure 8:80) is used following a drying procedure to produce reformed feed ingredients. This is disclosed in column 2, lines 58-63 and column 7, line 50 to column 8, line 14.

Anderson, Sermanni, Davenport and Peters are analogous art because they are from the same field of endeavor regarding agricultural waste treatment processes.

At the time of the invention, it would have been obvious to ensure that the pH within the enzymatic digester disclosed by Anderson is monitored throughout the process. Sermanni indicates that pH probes are well known in the art, and are useful in determining when it is necessary to adjust the pH of the solution using an appropriate corrective buffer. Since it is known that enzymes demonstrate optimum activity at certain pH levels, it would have been obvious to ensure that the enzymatic digester is continuously operated under these conditions.

At the time of the invention, it additionally would have been obvious to mount Anderson's grinder on a movable platform. Anderson teaches that this would have been beneficial because it would have allowed the protein waste recycling apparatus to

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easily travel between a various locations. This minimizes the costs associated with handling and transporting the protein waste products.

At the time of the invention, it also would have been obvious to provide Anderson's device with an extruder at the drying stage. Peters indicates that extruders are known in the art as a means by which to create a product in a desired shape and form. In column 5, line 44 to column 6, line 11, Anderson states that it important to convert the finished protein product into a pellet or cake. An extruder would be able to do this in an effective manner.

With respect to claims 14 and 20, Anderson, Sermanni, Davenport and Peters disclose the apparatus as previously described above. In addition, Anderson discloses the use of various pumping means capable of transporting materials throughout the system. Furthermore, the digesting/emulsifying assembly comprises a heating means capable of raising the temperature. This is disclosed in column 12, line 57 to column 14, line 37.

With respect to claim 3, Anderson, Sermanni, Davenport and Peters disclose the apparatus in claim 1. Although the combination does not specifically disclose the use of centrifugal pumps, the use of centrifugal pumps is well known in the art. It would have been obvious to ensure that the pumps in Anderson's invention were centrifugal pumps if it was deemed that this type of pump produces the best results.

With respect to claim 4, Anderson, Sermanni, Davenport and Peters disclose the apparatus in claim 3. Anderson does not expressly disclose the use of an inductor nozzle and a centrifugal pump, it is believed that these structural limitations are commonly used in the art. The use of pipes and nozzles to recirculate a solution can be found in Dvorak (US 20020197665) and Chervan (US 4443540).

With respect to claims 5-7, 15 and 16, Anderson, Sermanni, Davenport and Peters disclose the apparatuses in claims 1 and 14. As previously described, Sermanni teaches the use of a pH probe internal to a mixing tank and a pH monitor associated with the probe. Sermanni additionally teaches that pH adjusting solutions are added to the mixing tank in response to the readings taken by the probe. Although not expressly stated, the disclosed pH adjusting solutions could intrinsically be acids, and, more specifically, phosphoric and/or lactic acids. The monitor intrinsically could be used to compare the recorded pH level in the tank to an optimal pH level. The use of pumps to control the flow of pH adjusting solutions to a tank is well known in the art.

With respect to claim 12, Anderson, Sermanni, Davenport and Peters disclose the apparatus in claim 1 wherein an extruder and a dryer are provided in series. Although Anderson, Sermanni, Davenport and Peters do not expressly disclose that the extruder and the drying apparatus are connected by an oscillating belt, it is well known in the art that oscillating belts are useful as means to link extruders to drying



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apparatuses. This is evidenced by Wenger (US 4099455), Jackman (US 3910775) and Buffa (US 3861293).

With respect to claim 22, Anderson, Sermanni, Davenport and Peters disclose the apparatus in claim 20 wherein the drying apparatus comprises two distinct evaporator units (Figure 1:74 and Figure 1:76). The evaporator units intrinsically could be set at different temperatures so that one evaporator is hotter than the other. The evaporators intrinsically could further possess localized heating regions characterized by different temperatures.

***Allowable Subject Matter***

Claims 8-11, 13, 17-19, 21 and 23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 8-11, 13, 17-19, 21 and 23 recite extra limitations that are arranged together in a novel way to produce a system that is patentably distinct. While the prior art does recognize certain limitations presented in the claims individually, there is no motivation to combine them in order to create protein recycling system disclosed by the Applicants. For instance in claims 8, a grinding assembly with a conveyor belt is known in the art as evidenced by Byram (US 20040112999) and Davenport (US 6045070), however there is no reason, motivation, or desire to combine the grinding assembly with the mixing means described in the claim. Furthermore, with respect to claims 17 and

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18, there is no motivation in the prior art to add a prep tank and holding tank to the disclosed mobile grinding assembly since such features are unnecessary in Anderson's design. With respect to claim 9, digesting and emulsifying means are not known in the art that include all of the features described in the claim. With respect to claim 13, drying apparatus comprising either a dryer bed apron, heating and cooling zones, a roller mill, or a vibrating screen are known, however a single drying apparatus comprising all of these components is not. Furthermore, there is no motivation to combine the individual components. With respect to claim 21, Oota (US 6474576) discloses a mixing operation that employs a load cell, however Oota offers no expectation that the disclosed load cell could be utilized in a device such as Anderson to weigh preservatives, inedible eggs, an amount of enzymes, and an amount of water.

### ***Conclusion***

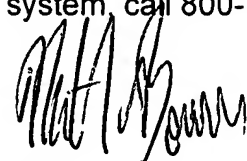
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Griffin (US 6174551), Ainsworth (US 6299774), Wojcik (US 4361590), Shih (US 4959311) and Freeman (US 4473589) disclose the state of the art regarding protein recycling.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan A. Bowers whose telephone number is (571) 272-8613. The examiner can normally be reached on Monday-Friday 8 AM to 5 PM.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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